

Accidents at Grade Crossings and to Trespassers

An Address by
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*Delivered before the Convention of the
Boards of Supervisors
of California*



And
An Editorial on the Address by
THE RAILWAY AGE GAZETTE
of June 21, 1916

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WHILE the operation of trains in the United States has become safer, so far as passengers and trainmen are concerned, it has become much more hazardous to those who are compelled to cross the tracks. The reasons for this increase are not difficult to find. Before the coming of the automobile, traffic on the highways was carried on by horse-drawn vehicles at a speed which rarely exceeded ten miles per hour and which probably averaged less than five. On account of the limitations of the horse, drivers were generally in territory which was so familiar to them that they knew where each crossing was located, its condition and surroundings, and were often even familiar with the time tables of the railroads. In the country, because many horses were unused to trains, drivers as a rule desired to be as far away as possible from a crossing when a train passed over it. This has all been changed. The coming of the automobile has vastly increased the mileage of good roads, and the two together have made it possible for much traveling to be done in territory unfamiliar to the traveler, while the speed of traffic on the roads has been very greatly increased.

During this period in which the automobile has been developing, there has developed also a desire on the part of

those who work in the cities to live in the suburbs, and this has led to the construction of interurban railroads and the use of high-speed cars upon them, as well as additional high-speed service on the steam railroads. Population in and about the larger cities has also greatly increased during this time and the traffic on both rail and road has been intensified by this growth.

The situation in California is peculiarly unfavorable to satisfactory grade crossing conditions. The state ranks third in the number of its automobiles. It will compare favorably with any state in the mileage of its improved roads. It has a large automobile tourist traffic unfamiliar with its highways, and it has a climate which permits the use of automobiles every day during the year. Its suburban trains, especially in the south, are numerous and run at high speeds, and the topography of the country in the valleys where the population is greatest, train service most frequent and improved highways most numerous, rarely permits of grade separations being made without the expenditure of large sums of money. In these valleys, also, fruit orchards are plentiful and grade crossings are often concealed by the trees at the intersection of the railroads and highways. Bearing this condition in mind, it is not difficult

to believe that California, with less than 4 per cent of the population of the country and less than 2 per cent of the steam railway mileage, furnishes nearly 5 per cent of the deaths and injuries reported to the Interstate Commerce Commission as resulting from grade crossing accidents on steam railroads.

During the three years ended June 30, 1915, 249 people were killed and 1093 injured at grade crossings in this state. During the six months ended December 31, 1915, 65 people were killed and 222 were injured; in January there were 2 killed and 24 injured; in February 8 killed and 16 injured and in March 3 killed and 35 injured; and the record is always much worse in the summer than in the winter.

CARELESSNESS RESPONSIBLE

We are horrified at the waste of human life going on in Europe, but we hardly give a thought to the absolute waste of life which is going on around us unless we happen, in a measure, to be charged with responsibility for it. Crossing accidents result from a very small percentage of the movements which are made over railroad tracks on highways, but we are appalled when we collect these accident statistics and find how large the total is. The Interstate Commerce Commission,

the state commissions all over the country, boards of supervisors, city officials, railroad officials themselves and others are carefully investigating the matter and attempting to work out some solution of this grade crossing problem.

An unfortunate feature of the situation is found in the fact that many of these accidents are due to carelessness. The Southern Pacific Company recently made test observations at 34 crossings. They observed over 17,000 motor vehicle drivers and found that 69½ per cent looked neither way before crossing the tracks, 2.7 per cent looked in one direction only, and but 27.8 per cent looked both ways. Nineteen and three-tenths per cent, or the incredible number of 3,300 drivers, ran over the crossings at a reckless rate of speed. Only 35 drivers, or two-tenths of one per cent, stopped their machines before crossing the tracks. Four thousand and nine hundred drivers of teams were observed, 39.4 per cent of whom looked in neither direction, 8.6 per cent looked one way only, and 52 per cent looked in both directions. Of 6,300 pedestrians observed, 49.1 per cent, or practically one-half of the total, looked neither way, 15 per cent looked in one direction only, and 35.9 per cent looked both up and down the track. The same company has tabulated the accidents on

grade crossings which have happened during the last five and one-half years in an attempt to secure the reasons for these accidents:

	Killed Per cent	Injured Per cent
Ignored train and its warning.....	35.0	37.1
Ignored train and its warning and warn- ing of crossing bell, automatic and human flagman, and warnings of other persons.....	13.8	12.6
Ran into side of train.....	10.1	15.3
Stalled on track.....	7.8	4.2
Tried to beat train to crossing.....	16.0	9.3
Other causes.....	17.3	21.5
Total.....	100.0	100.0

This company during two years had 525 crossing gates broken by vehicles which drove into them while they were down.

In view of these figures the eventual solution of the crossing problem, it is plain, must be grade separation, but this solution is a long way in the future. There are over 10,000 grade crossings in California and \$30,000 would be a low estimate of the cost of eliminating one crossing. To separate grades at all of the crossings would cost over \$300,000,000 and it is, of course, out of the question to consider any such an expenditure at this time. Neither the people nor the railroads can stand it.

As long as the grade crossings must remain we must do what we can to make them as safe as possible.

There are three ways of protecting crossings. The most expensive is that of installing crossing gates with attendants. It costs \$700 to install a set of crossing gates, and \$900 per year to pay the wages of attendants and the cost of operation. Probably the next best method of protecting crossings is by human flagmen. The railroads have found that it costs them about \$600 per year to protect a crossing in this manner. The third type of crossing protection is by automatic bell, wigwag, automatic flagman or similar device, and while they are not as efficient as the other two types they are much better than no protection at all. These devices cost from \$350 to \$600 to install and the cost of maintaining them is from \$2 to \$10 per month. From this it can be seen that even the cheapest sort of protection cannot be installed at once at all the crossings in California—yet something must be done.

Under the provisions of the public utilities act of this state, which went into effect in March, 1912, the railroad commission has been made more or less responsible for grade crossing conditions in California. In Section 43-A of the act the legislature holds the commission responsible for the safety of future crossings by requiring that its permission shall be obtained before a new crossing can be

constructed. In Section 43-B it rests the same responsibility upon it for crossings previously constructed by giving it the power to alter or abolish them or to require grade separations to be made in place of them. The commission fully realizes this responsibility and considers it one of the most important of the many duties it has to perform. It has had all crossing accidents resulting in loss of life investigated and as a result of these investigations many protective devices have been installed. It has repeatedly aided in its decisions, and has followed the principle, that no more crossings shall be made unless they are absolutely necessary. Recently it has instituted a state-wide investigation into grade crossing conditions. In March the entire commission held hearings in San Diego, San Francisco, Sacramento, Fresno and Los Angeles to consider the subject and it now has several parties of engineers in various parts of the state engaged in making inspections and reports on grade crossings.

INCREASE OF CROSSINGS

I would like to point out to you a few things you can do to assist the commission in the work it has undertaken—things which will have their influence in bettering the crossing situation in the state.

Most of the crossing applications upon which the commission acts, except spur track crossings, are made by cities, towns or counties to cross main line tracks of railroads. The railroad lines, and especially the main lines and the more important branch lines in California, are located and permanent. As the country settles up, large farming tracts are subdivided into smaller farms and property in and adjacent to the towns and cities is cut up into lots. It has been the experience of the commission that these subdivisions are laid out with but slight reference to the location of railroads within their boundaries, so far as grade crossings are concerned, and the streets and highways which traverse them are later accepted as public highways by the counties almost without question. When property in one holding is laid out on both sides of a railroad track, the streets or highways are located exactly as they would be if the railroad were non-existent, and although few streets are opened across the track when the project is first started, it is the expectation that later all of the various streets will be dedicated to public use and will cross the rails. If future subdivisions were laid out with the realization that all grade crossings will eventually be abolished, a large decrease in

the number of grade crossings to be made would be effected.

This is a matter in which you can be of great assistance. The commission has, of course, no jurisdiction over the roads the counties accept as public highways, but if the county officials would refuse to accept road dedications which involve, or may, in the future, involve, the construction of crossings in close proximity to each other the number of crossings to be applied for would be lessened.

Another matter is that of closing railroad crossings which are not absolutely necessary. There are many instances in the state where public crossings have been built to serve one or two people who could be served almost as conveniently at some adjacent crossing. There are still other crossings which can be closed without causing inconvenience to anyone if short highways are built to some other crossing where the traffic can cross with more safety.

As was said in the commission's opinion in connection with an application of the city of Santa Cruz to construct a crossing: "It has been often argued that with a given amount of traffic across the track from one side to the other no additional hazard would be incurred by opening a few additional crossings. To show the fallacy of this argument it is necessary

only to consider the case of a city where all the traffic crosses on one street and the same city with the track through it an open highway where vehicles and pedestrians can cross at will. In the first case, by having traffic concentrated at one point, the engine driver can and will use a certain amount of caution when crossing this street, and the users of the crossing will be induced to properly safeguard their own approach. Where the track is open, or where many crossings exist close together, it is impossible for an engine driver to take the same pains to avoid an accident, and the people who cross the track become careless and forgetful of the risk they incur and cross the track many times when it is not necessary to do so."

Here, again, is something which can very well be done by the boards of supervisors. I have said that every crossing carries with it a certain amount of hazard. It also carries with it the promise of future expenditures when all crossings are made at separated grades. When that time comes each crossing then in existence will mean an outlay of from \$30,000 to \$150,000 and the cost of that work will finally be borne by the people in higher rates even if the original cost is borne by the railroads. It is not only a good safety measure, but it is good business, to keep

the number of new crossings down and eliminate now all crossings which are not absolutely needed.

I do not wish to convey the idea that the commission will oppose the construction of any more grade crossings. To develop the resources of the State good roads, conveniently located for public travel, are needed. We need more of them, and there are going to be grade crossings on some of them but we should remember that conditions are no longer what they used to be when automobiles were unknown and trains ran at speeds of 20 miles per hour, and we should not burden the counties and the railroads with public highway grade crossings by granting crossings, as we used to do, to accommodate everyone who takes the trouble to apply for them.

REMEDIES FOR CROSSING ACCIDENTS

Meanwhile the existing situation must be met. It has been suggested that the legislature should pass laws requiring all motor vehicles to come to a full stop before passing over a grade crossing. In the opinion of many such a law would be unreasonable and because it was unreasonable would not be enforced. The city of Long Beach has an ordinance requiring all jitneys to stop before crossing a railroad track and it is reported to be very

successful in its operation, but this is a different matter from requiring all motor vehicles to stop at all railroad crossings in the state and the difficulties of enforcing it are much less than they would be in enforcing a similar law that was statewide in its application. To my mind a better suggestion is a law requiring the drivers of motor vehicles to drive slowly when approaching an intersection of a track and a highway. Such a law would not be unreasonable. The law-abiding drivers—and I believe they form a large majority—would be careful to observe it and those who would not otherwise respect it would be compelled to respect it by the same officers that make them respect the speed limit law.

Personally I have not a great deal of sympathy with the careless driver who gets hurt in a crossing accident. But our figures show that when a driver is hurt or killed three or four people with him are also hurt and killed. Last September may be taken as a typical month. Three auto drivers were killed in the state that month and 10 other occupants of the automobiles were killed at the same time. Nine drivers were injured and 37 other occupants were injured. These other occupants of the vehicles struck by trains were in many cases—possibly in most cases—relatives of the drivers, often

wives and children, and if the careless driver when left to himself so far forgets the safety of himself and those who are nearest to him as to jeopardize their lives in this fashion, it is time for the law to step in and tell him what he must do to guard them.

It has been suggested that some state body—the railroad commission, for instance—should have the right to place distinctive signs in a conspicuous location at all exceptionally dangerous crossings which would, under the law, require automobile drivers to bring their vehicles to a stop before crossing the track. Such a law, in connection with a law requiring slow speed over all crossings, might have a very helpful effect. The commission is now investigating the subject and will make such recommendations to the next legislature as the result of these investigations seems to make advisable.

EVIL OF RAILWAY TRESPASSING

Although the topic assigned to me was grade crossings, I cannot resist the temptation to say a few words about a near relative of the grade crossing in causing death and injury; and that is trespassing on railroad right of way.

In 1914, 5,396 persons were killed in the United States and 6,176 were injured while trespassing on railroads, and these

figures are about the same as those reported for previous years. During that same year there were 165 trespassers killed and 217 injured in California.

In the last 25 years there have been over 212,000 people killed in the United States in railroad accidents and of this vast number over 112,000 were trespassers. This record would be bad enough if those who suffered were tramps and "hobos," but when we find that 75,000 of the total killed while trespassing, were citizens of the locality in which the accident occurred and 13,000 were children under 18 years of age, we must all admit it to be absolutely disgraceful.

The grade crossing problem is one which is met with, more or less, in all countries, but trespass accidents occur only in the United States. In Europe the property of the railroads is no more used for public thoroughfares than are the privately owned ranches and farms in this country, and even Canada, with more excuse than the United States for permitting trespassing in and around railroad tracks has rigid, anti-trespassing laws which are strictly enforced.

What would we think of the manufacturing plants of this country if they permitted anyone who so desired, to wander at will around dangerous machinery and, as a result of this, killed and

injured between 11,000 and 12,000 people every 365 days? We would tell their owners, very shortly, that they would have to keep those people out and if they could not do it we would see to it that the police did. Yet the case is exactly parallel with railroad trespassing. The railroad companies are anxious to have strong anti-trespass laws and in the few states in the east where there are such laws, they do their best to enforce them. But they cannot keep people from their property unless laws have been passed and unless, when passed, they are enforced.

During the year ended June 30, 1914, there were, as I have said, 165 people killed and 217 injured in trespassing accidents in California, while during the same period there were 93 killed and 378 injured in grade crossing accidents. It would cost over \$300,000,000 to eliminate the grade crossing accidents by separating grades, but the cost of eliminating the trespassing accidents would be confined to a small extra cost of policing after the necessary laws had been passed.

It is sometimes so convenient to use the railroad track as a footpath, and we have grown so accustomed to considering ourselves entitled to walk on the track to save ourselves a little longer walk by road or street, that I am not very hopeful that I shall live to see the day when

legislatures will pass and the people themselves will enforce, laws which will do away with this evil. But I believe the day will come when it will be done and those of us who are compelled to think of these things should do all we can to hasten its coming.

Accidents at Grade Crossings and to Trespassers

(An editorial on Commissioner Gordon's address reprinted from the Railway Age Gazette of June 21, 1916.)

THE number of persons killed at grade crossings and while trespassing on railway property in the United States is about 6,000 annually. This is 60 per cent of all the fatal accidents which occur on our railways. It is double the number of passengers and employees killed. It is, therefore, a terrible anomaly that far more public attention is given, and far more regulation is directed to reducing accidents to passengers and employees than to other classes of persons. Neither the public nor most public authorities seem to understand the true situation with respect to these matters, or, if they understand it, do not appear disposed to deal with it intelligently, fairly and effectively.

Here and there, however, there is a public official whose utterances show he has studied the statistics regarding and the causes of grade crossing and trespassing accidents; that he has arrived at correct conclusions as to the only practical preventives of them; and that he has the courage to express himself frankly

regarding them. A notable example is afforded by Alex. Gordon, a member of the Railroad Commission of California, whose recent address on accidents at grade crossings and to trespassers is published elsewhere in this issue. Mr. Gordon shows clearly that a large majority of grade crossing accidents are due to the needless multiplication of crossings of highways over railways, and to the carelessness of those using the crossings. The popular impression is that most grade crossings result from railways being opened across highways. As Mr. Gordon makes clear, the fact is that most of them are due to highways being opened across railways; and many of them are more of a menace than a convenience to the public. The remedy ordinarily suggested for grade crossing accidents is the elimination of the crossings, at the expense of the railways. In view of the fact that most grade crossings result from highways being opened across railways, the adoption of this remedy is most unjust to the railways, unless they are allowed to pass the burden along to the public through their freight and passenger rates. In the long run, this is what is bound to occur. How impracticable, from the standpoint of both the railways and the public is the abolition of grade crossing accidents by the uni-

versal separation of grades, is indicated by some figures given by Mr. Gordon regarding the situation in California. There are 10,000 grade crossings in that state alone. Therefore, estimating the average cost of separating them at \$30,000, the cost of eliminating all of them would be \$300,000,000. But, as Mr. Gordon says, his estimate of \$30,000 as the average cost of separating grades is very conservative. The average cost throughout the country up to the present time has been nearer \$50,000. On this basis the total cost of separating all grades in California would be a half billion dollars; and California is but one state out of forty-eight!

The universal separation of grades as a remedy for crossing accidents is not practical because the cost of it would be prohibitive. There are other remedies the application of which would cost very much less, and which can be made effective. Mr. Gordon mentions a number of these. One point which his discussion brings out clearly, however, is that if this class of accidents is to be reduced there must be close, cordial and energetic co-operation between the railways and public officers. The railways should be required to adopt all reasonable measures to safeguard their crossings. If, after they have done this, their warning signals

are disregarded, their watchmen are defied or their gates are broken down, as is now so often the case all over the United States, it becomes the obvious duty of the public authorities to step in and arrest and punish the offenders. Otherwise, all the efforts made by the railways will continue to be comparatively fruitless.

As to trespassing accidents, they present a problem which, as Mr. Gordon concedes, is far more one for public officers than for railway managements. It is often confused with the problem presented by grade crossing accidents; in fact, the two are entirely different. People have a right to use the highways to cross railway tracks. The need here is to so protect and police crossings as to prevent fatal and inexcusable carelessness and recklessness in the use of them. On the other hand, people have no moral or legal right to use the tracks of railways as highways or to steal rides on their trains. In view of the fact that more than one-half of all those killed on our railways meet their deaths while doing these things, it is a startling commentary on the motives that animate our lawmakers or the efficiency of our governments, that while it is possible to get passed and enforced laws to deal with almost every other real or imaginary

cause of railway accidents, it is impossible to get either passed or enforced in most states laws to stop trespassing. The blood of all the more than 5,000 persons who are killed each year while trespassing on railway property cries aloud against the contemptible ignorance, indifference and incompetence of those responsible for the kind of government we have in this country; and thus far it has cried out in vain.

It is encouraging to find a member of a railroad commission discussing the conditions with the intelligence and candor shown by Mr. Gordon. It is to be wished that the members of all the commissions would not only speak out, but would use their influence to secure the passage and enforcement of proper laws. The "safety first" movement being conducted by the managements and employees of the railways needs to be supplemented by a "safety first" movement on the part of public officers free from political motives and dictated and directed by considerations of public welfare.

